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ALBERTA MOTOR GASOLINE SURVEYS

1949

J. S. Charlesworth and E. Tipman

RESEARCH COUNCIL OF ALBERTA
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The quality of motor gasolines sold in the Province of Alberta has been surveyed systematically by the Research Council of Alberta since 1939. Previous published reports* on this subject covered information compiled during the period from 1939 to 1948. This report gives detailed information on the quality of the gasoline sold during the winter of 1948-1949 and the summer of 1949.

The standard test procedures of the American Society for Testing Materials (A.S.T.M.) which have been used throughout are: Octane number, A.S.T.M. method D357, (otherwise known as the motor method); Tetraethyl lead, A.S.T.M. method D526; Reid vapour pressure, A.S.T.M. method D323; Gravity at 60 degrees Fahrenheit in degrees A.P.I., A.S.T.M. method D287; Distillation range in degrees Fahrenheit on a basis of percentage evaporation, A.S.T.M. method D86; Sulphur content, A.S.T.M. method D90; Gum content, A.S.T.M. method D381; corrosion, A.S.T.M. method D130.

Alberta Standard Specifications for Gasoline as listed in table 1, provide for the classification of samples into four groups, namely, Premium grade, Regular grade, Summer grade and Winter grade. Test data for these groups are tabulated separately.

Table 2 and table 3 list the average, maximum, and minimum values obtained on each test for both grades of gasoline and for the seasonal periods. For ease of reference, Alberta Standard Specification values are also included.

Tables 4, 5, 6, and 7, list in detail the analytical results obtained on each sample. The names of the supplying companies are omitted.

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* Alberta Motor Gasoline Surveys 1939 to 1947. R.C.A. Mimeographed Circular No. 2.
Alberta Motor Gasoline Surveys 1948. R.C.A. Mimeographed Circular No. 4.

The samples from individual companies, however, are grouped together and the companies are indicated by code letters. Table 8 lists those companies whose products were sampled but the order of listing has no relationship to the order of code letters.

For comparative purposes, tables 9 and 10 show the average analysis for both grades of gasoline and seasonal periods from 1939 to 1949. The variations in octane rating and tetraethyl lead over the same period are shown graphically.

In tables 4, 5, 6, and 7, values which do not conform to the requirements of the Alberta Standard Specifications for Gasoline have been underlined. Out of a total of 144 samples, 39 samples or 27.1 percent failed to comply with specifications in one or more particular respects. This value is almost double the percentage reported in 1948. With the exception of Premium gasoline sampled during the winter period, all groups showed a marked increase in the number of failures. Samples of Premium grade gasoline, however, continued as in previous years to show a lower percentage of failures than did samples of regular grade gasoline.

In many cases, solvent oil is added to gasoline as a solvent or top cylinder lubricant. In the standard A.S.T.M. gum test the solvent oil remains with the gum in the form of a mixed residue. While various procedures have been proposed for the determination of the actual gum present, some doubt exists as to the accuracy of the results obtained. Where solvent oil has been suspected of being present in any sample mentioned in this report, the results obtained are described separately as "gum plus oil".

The significant feature shown in tables 9 and 10 and the graph, is the marked decrease in tetraethyl lead content and octane number of the gasoline over the period of the past twelve months.

Table 1

Alberta Specifications for Gasoline

Premium and Regular Grades

Test		Specification Value
Octane Number	Premium	Minimum 75
	Regular	Minimum 70
Appearance		Clear
Corrosion		Nil
Reid vapour pressure lbs.	Summer	Maximum 10
	Winter	Maximum 13
Sulphur percent		Maximum 0.15
Gum milligrams per 100 cc.		Maximum 7
Freezing point degrees F.		Maximum -60
Tetraethyl lead cc/I.g.		Maximum 3.6
Distillation range degrees F. Distilled basis		
10 percent	Summer	Maximum 155
	Winter	Maximum 140
50 percent	Summer	Maximum 260
	Winter	Maximum 255
90 percent		Maximum 370
Loss percent		Maximum 2.5
Colour	Premium	Red
	Regular	Other than red
Time periods	Summer	May through Sept.
	Winter	Nov. through Mar.

Table 2

Summary of Analytical Data

Winter Gasolines 1948-1949

TEST	Premium Grade Gasoline				Regular Grade Gasoline			
	Spec.	Ave.	Max.	Min.	Spec.	Ave.	Max.	Min.
	Total Samples 41				Total Samples 39			
Octane Number	Min. 75	77.1	78.3	75.5	Min. 70	73.7	75.5	70.8
Tetraethyl Lead	Max. 3.6	2.95	3.59	1.92	Max. 3.6	2.35	2.99	1.00
Vapour Pressure	Max. 13	10.1	12.4	7.0	Max. 13	9.5	12.0	7.3
Gravity		62.0	64.1	59.0		60.8	63.2	56.4
Distillation Range								
I.B.P.		88	100	78		90	102	81
10%	Max. 140	120	138	106	Max. 140	128	154	107
50%	Max. 255	229	251	209	Max. 255	244	269	222
90%	Max. 370	335	368	310	Max. 370	336	356	321
E.P.		393	415	366		391	413	372
Sulphur	Max. 0.15	0.06	0.12	0.03	Max. 0.15	0.05	0.12	0.02
Gum	Max. 7	2.8	8.6	0.2	Max. 7	2.8	10.2	0.2
Gum plus Oil		10.5	18.4	5.2		10.9	14.8	5.2
Corrosion	Neg.	Neg.			Neg.	Neg.		
Freezing Point	Max. -60	Pass			Max. -60	Pass		
Colour	Red	Red				Yellow		

Table 3

Summary of Analytical Data

Summer Gasolines 1949

TEST	Premium Grade Gasoline				Regular Grade Gasoline			
	Spec.	Ave.	Max.	Min.	Spec.	Ave.	Max.	Min.
	Total Samples 34				Total Samples 30			
Octane Number	Min. 70	75.6	77.0	73.4	Min. 70	71.8	73.4	66.6
Tetraethyl Lead	Max. 3.6	2.35	3.61	1.51	Max. 3.6	1.39	2.86	0.72
Vapour Pressure	Max. 10	8.6	10.3	6.3	Max. 10	8.6	10.1	6.7
Gravity		60.3	63.6	57.5		59.6	61.2	57.0
Distillation Range								
I.B.P.		95	117	86		93	108	86
10%	Max. 155	133	165	120	Max. 155	132	149	122
50%	Max. 260	235	255	199	Max. 260	245	274	220
90%	Max. 370	341	364	293	Max. 370	346	360	331
E.P.		401	448	371		401	424	384
Sulphur	Max. 0.15	0.05	0.13	0.03	Max. 0.15	0.05	0.09	0.03
Gum	Max. 7	4.7	21.4	0.4	Max. 7	6.5	26.0	0.4
Gum plus Oil		12.6	29.8	5.0		26.7	155.8	3.6
Corrosion	Neg.	Neg.			Neg.	Neg.		
Colour	Red	Red				Yellow		

Table 4

Data of Gasoline Survey Analysis

Premium Gasoline Winter 1948-1949

Co.	Octane No.	Tetra-ethyl Lead	Vapour Pres-sure	Gravity	Distillation Range					Sulphur	Gum	Gum + Oil	Cor-ros-ion
					I.B.P.	10%	50%	90%	E.P.				
	Alberta Specifications												
	Min. 75	Max. 3.6	Max. 13			Max. 140	Max. 255	Max. 370		Max. 0.15	Max. 7		Neg.
C	76.6	2.88	7.8	60.7	92	133	231	342	396	0.07	1.2		Neg.
C	77.1	2.84	7.5	60.0	94	135	233	346	399	0.05	1.0		Neg.
C	77.4	3.12	10.1	62.1	81	116	226	343	398	0.06	2.6		Neg.
C	77.3	2.85	11.0	61.9	86	110	223	342	393	0.07	0.8		Neg.
C	76.8	3.47	7.0	59.5	96	138	237	351	397	0.06	3.0		Neg.
C	76.9	2.83	10.5	62.9	93	119	223	341	392	0.05	1.8		Neg.
C	77.3	2.73	10.6	63.2	88	119	221	338	387	0.07	1.6		Neg.
C	76.7	2.91	10.4	63.5	88	120	217	337	393	0.06	0.6		Neg.
E	77.4	3.09	8.7	61.2	93	127	235	332	394	0.05	3.0		Neg.
E	77.5	2.91	11.3	63.1	81	112	225	322	396	0.05	3.6		Neg.
E	75.5	2.75	9.9	61.6	89	117	221	340	393	0.03		7.2	Neg.
F	77.6	1.92	11.3	63.2	91	116	221	317	366	0.12	1.4		Neg.
F	77.5	2.70	11.0	63.3	83	115	219	310	375	0.06	3.6		Neg.
F	77.5	2.90	11.4	63.0	78	106	228	327	382	0.06	4.2		Neg.
F	77.8	2.87	10.7	63.3	82	115	226	325	379	0.06		5.2	Neg.
F	76.6	2.75	11.9	63.5	88	111	228	330	388	0.05	4.0		Neg.
G	77.3	2.98	9.3	61.8	94	125	237	335	395	0.06		17.0	Neg.
H	77.2	3.06	9.3	61.4	89	122	227	334	396	0.07	8.6		Neg.
H	77.3	2.61	12.4	64.1	87	107	220	326	386	0.05	2.0		Neg.
I	77.2	3.10	8.6	61.9	90	126	230	335	398	0.05	3.2		Neg.
I	77.7	2.87	11.6	63.6	83	108	223	320	384	0.06	2.6		Neg.
I	76.4	3.00	11.3	62.8	85	116	229	328	393	0.05	3.6		Neg.
J	77.1	2.04	11.0	63.4	89	118	209	333	398	0.04	1.0		Neg.
K	77.1	3.49	9.7	59.6	91	131	251	349	401	0.08	0.8		Neg.
K	76.5	3.55	9.5	60.1	100	131	236	365	415	0.08	0.8		Neg.
K	76.1	3.59	9.1	59.5	88	129	247	368	414	0.08	1.0		Neg.
K	76.0	3.30	9.4	60.1	85	126	241	362	411	0.10	0.2		Neg.
L	77.3	3.03	8.5	61.2	94	128	225	332	394	0.06	2.6		Neg.
L	78.3	3.19	12.2	62.8	84	118	227	329	390	0.05	5.4		Neg.
L	77.7	3.23	10.2	62.1	86	119	232	331	392	0.05		7.8	Neg.
L	77.5	3.09	10.2	62.1	86	117	230	331	386	0.06		7.4	Neg.
L	77.1	2.82	11.8	63.1	86	113	233	333	395	0.05		6.8	Neg.
L	77.0	2.74	11.6	63.8	82	112	225	329	391	0.05	3.6		Neg.
L	76.6	3.14	10.1	61.8	89	123	236	333	395	0.06	4.4		Neg.
L	76.9	3.13	10.0	61.9	89	121	235	330	395	0.06	5.8		Neg.
M	76.5	1.99	10.6	62.7	87	122	229	343	399	0.05	1.6		Neg.
M	77.6	2.88	11.3	63.5	85	110	209	322	384	0.05	2.8		Neg.
O	76.6	3.12	8.7	61.2	90	127	238	326	401	0.04		18.4	Neg.
P	77.7	3.36	9.5	59.0	82	128	250	353	401	0.11	5.8		Neg.
R	77.0	3.13	8.1	61.2	99	128	229	334	398	0.04		14.0	Neg.
S	77.7	2.92	11.1	63.2	89	119	228	327	381	0.06	5.0		Neg.

Table 5

Data of Gasoline Survey Analysis

Regular Gasoline Winter 1948-1949

Co.	Octane No.	Tetra-ethyl Lead	Vapour Pressure	Gravity	Distillation Range I.B.P.	10%	50%	90%	E.P.	Sulphur	Gum	Gum + Oil	Corrosion
					Alberta Specifications								
	Min. 70	Max. 3.6	Max. 13			Max. 140	Max. 255	Max. 370		Max. 0.15	Max. 7		Neg.
C	72.1	2.44	8.4	59.1	91	129	257	348	398	0.06	1.8		Neg.
C	71.8	2.69	8.0	58.8	89	133	258	343	401	0.07	0.6		Neg.
C	74.4	2.99	9.9	59.5	81	121	262	347	413	0.07	4.6		Neg.
C	71.6	2.91	8.9	56.4	90	133	269	355	399	0.06	1.8		Neg.
C	74.1	2.41	11.0	60.0	89	118	261	353	399	0.06	5.6		Neg.
C	74.8	2.23	10.6	60.2	92	117	259	348	394	0.05	3.2		Neg.
C	73.7	2.66	10.6	59.9	86	118	263	349	397	0.06		12.2	Neg.
C	74.3	2.76	11.0	60.3	88	118	260	354	398	0.07	1.2		Neg.
C	74.0	2.74	10.1	59.9	93	124	264	355	389	0.07	1.8		Neg.
C	73.4	2.48	10.4	62.9	88	119	234	345	394	0.06	0.8		Neg.
E	74.5	2.66	9.3	61.5	92	133	236	328	386	0.04	2.2		Neg.
E	74.4	2.08	10.9	61.3	81	115	245	334	390	0.05	0.8		Neg.
E	74.4	2.57	8.7	60.9	102	132	237	337	398	0.04		12.2	Neg.
F	74.2	1.00	9.9	61.5	93	123	232	328	377	0.10	1.6		Neg.
F	74.7	2.25	9.4	61.6	88	130	234	327	390	0.05		5.2	Neg.
F	73.4	1.69	12.0	63.2	85	107	236	330	372	0.05	0.8		Neg.
G	74.4	2.55	9.2	61.6	94	131	237	328	387	0.03		14.8	Neg.
H	74.6	2.56	9.1	61.6	94	124	238	329	381	0.05	2.8		Neg.
I	74.6	2.45	9.4	62.0	95	129	233	323	376	0.04	0.2		Neg.
I	74.9	2.84	10.0	61.5	90	133	236	330	395	0.04	7.6		Neg.
I	74.5	2.64	9.4	61.4	91	132	237	329	394	0.04		10.2	Neg.
I	74.0	2.78	9.1	61.7	98	140	238	331	389	0.03	6.8		Neg.
J	72.3	2.22	8.2	59.4	93	133	261	350	401	0.05	1.8		Neg.
J	74.1	2.06	10.9	60.9	85	120	260	345	392	0.04	5.6		Neg.
K	71.1	1.70	9.1	61.6	92	131	233	323	385	0.06	0.4		Neg.
K	71.6	1.92	7.3	60.4	94	142	237	321	382	0.04	0.8		Neg.
K	75.5	1.60	9.6	59.1	86	135	241	356	403	0.12	10.2		Neg.
K	70.9	1.77	8.4	60.6	91	136	240	329	386	0.11	0.2		Neg.
L	74.4	2.60	9.4	61.1	91	133	238	329	383	0.03	2.2		Neg.
L	73.1	1.68	10.8	63.0	86	119	222	322	394	0.04	3.0		Neg.
L	74.4	2.54	9.7	62.0	88	130	234	322	389	0.03	4.4		Neg.
L	75.4	2.80	9.4	61.4	88	131	238	332	396	0.04	6.6		Neg.
M	71.8	2.17	8.4	59.5	94	137	263	352	402	0.07	2.6		Neg.
M	73.6	1.83	10.9	61.2	86	117	235	330	394	0.06	2.6		Neg.
M	75.0	2.75	9.6	61.2	90	130	237	328	390	0.03		10.2	Neg.
O	74.5	2.51	8.8	61.4	94	130	226	327	378	0.02		11.4	Neg.
P	70.8	1.59	8.6	61.0	86	134	235	329	390	0.04	0.8		Neg.
R	74.3	2.68	8.5	61.3	96	133	243	322	374	0.03	2.6		Neg.
S	75.0	2.68	6.3	57.5	99	154	257	334	390	0.04	0.6		Neg.

Table 6

Data of Gasoline Survey Analysis

Premium Gasoline Summer 1949

Co.	Octane No.	Tetra-ethyl Lead	Vapour Press-ure	Gravity	Distillation Range					Sulphur	Gum	Gum + Oil	Cor-ros-ion
					I.B.P.	10%	50%	90%	E.P.				
	Alberta Specifications												
	Min. 75	Max. 3.6	Max. 10			Max. 155	Max. 260	Max. 370		Max. 0.15	Max. 7		Neg.
C	76.5	2.19	8.8	61.9	89	125	221	336	391	0.06	0.8		Neg.
C	76.7	2.61	8.4	60.9	92	132	240	341	399	0.07	0.6		Neg.
C	76.6	2.91	10.3	61.0	89	131	244	354	399	0.09	1.8		Neg.
C	73.6	2.37	9.2	60.4	93	123	244	343	399	0.07		10.4	Neg.
C	76.0	2.75	7.8	59.8	90	128	225	341	392	0.05	1.0		Neg.
C	76.4	2.82	6.3	59.4	117	146	231	347	392	0.05	3.6		Neg.
C	75.3	2.26	6.5	60.2	99	141	225	350	419	0.04	4.2		Neg.
C	75.6	1.90	6.5	61.0	101	143	222	341	389	0.05	7.4		Neg.
C	75.5	1.93	7.1	62.7	109	140	208	315	386	0.04	0.4		Neg.
E	76.0	1.95	9.1	60.3	97	130	232	343	393	0.06	4.0		Neg.
E	75.5	2.12	9.2	60.1	87	131	241	345	407	0.04	4.0		Neg.
E	76.1	2.36	9.2	60.4	94	127	236	341	398	0.03	3.2		Neg.
F	76.2	2.92	9.2	61.4	86	124	234	341	403	0.06	8.8		Neg.
F	75.7	2.40	9.6	60.1	89	128	241	344	408	0.04		29.8	Neg.
F	75.6	2.04	8.4	60.4	98	136	234	341	399	0.05		5.0	Neg.
G	75.7	2.07	9.2	60.2	98	134	238	342	412	0.04		19.8	Neg.
H	74.4	1.97	7.4	57.5	105	143	251	355	413	0.04	21.4		Neg.
H	75.5	2.10	9.1	59.9	102	130	241	348	404	0.04		11.6	Neg.
I	75.9	2.11	8.9	60.2	98	131	240	343	408	0.04		14.8	Neg.
J	75.2	1.79	7.6	63.6	102	131	199	293	415	0.04	1.0		Neg.
K	77.0	3.61	8.4	58.4	91	137	255	364	409	0.08	10.0		Neg.
K	75.7	2.16	8.8	60.2	100	141	240	339	400	0.03		13.2	Neg.
L	75.2	1.81	9.2	59.4	90	130	242	356	448	0.05		5.6	Neg.
L	76.7	3.18	9.0	60.9	91	126	241	335	397	0.08		6.6	Neg.
L	73.9	2.74	9.4	60.7	92	121	217	338	392	0.07		10.2	Neg.
L	75.5	2.45	9.9	61.3	88	120	242	336	394	0.07		9.6	Neg.
L	74.0	2.31	8.1	58.7	89	137	243	342	407	0.04	3.0		Neg.
L	75.3	2.09	8.7	59.3	88	132	242	341	407	0.04		15.6	Neg.
L	75.2	2.01	9.4	57.7	87	126	235	347	407	0.04	5.2		Neg.
L	75.8	2.79	7.9	59.7	105	139	247	342	395	0.04	7.2		Neg.
L	75.8	2.09	8.9	60.4	96	130	240	342	399	0.03		20.8	Neg.
M	73.4	1.51	9.4	60.2	86	141	240	361	388	0.05		8.0	Neg.
M	75.5	2.14	8.9	60.2	104	138	238	340	400	0.04		7.0	Neg.
T	75.8	3.53	8.0	61.2	91	136	235	323	371	0.13	2.6		Neg.

Table 7

Data of Gasoline Survey Analysis

Regular Gasoline Summer 1949

Co.	Octane No.	Tetra-ethyl Lead	Vapour Pres-sure	Gravity	Distillation Range					Sulphur	Gum	Gum + Oil	Cor-ros-ion
					I.B.P.	10%	50%	90%	E.P.				
	Alberta Specification												
	Min. 70	Max. 3.6	Max. 10			Max. 155	Max. 260	Max. 370		Max. 0.15	Max. 7		Neg.
C	68.0	2.44	9.0	59.3	88	128	257	353	397	0.07	1.2		Neg.
C	73.1	2.86	7.1	57.0	102	147	274	357	401	0.07	0.8		Neg.
C	72.9	1.46	9.5	59.4	91	122	263	357	409	0.09		3.6	Neg.
C	70.6	0.89	9.2	60.3	86	125	246	344	396	0.06		20.0	Neg.
C	66.6	1.75	9.2	58.7	86	123	354	353	399	0.06		155.8	Neg.
C	71.6	2.11	8.0	57.5	90	126	268	349	406	0.07	1.4		Neg.
C	69.9	1.93	7.6	57.9	90	142	266	359	405	0.06		32.0	Neg.
C	71.0	1.26	7.8	59.7	98	138	243	347	394	0.06	0.4		Neg.
E	73.0	1.56	9.1	60.7	90	129	243	335	393	0.06		6.8	Neg.
E	70.3	0.72	8.9	59.3	90	132	243	351	405	0.04	12.6		Neg.
E	72.9	1.20	8.8	60.5	96	139	237	339	406	0.03		10.6	Neg.
F	71.6	1.61	8.1	57.5	97	144	248	351	411	0.04	26.0		Neg.
F	73.4	2.00	9.3	61.2	87	122	237	345	403	0.06	6.6		Neg.
F	71.6	1.41	6.7	58.6	95	149	248	345	405	0.03	5.4		Neg.
F	71.4	1.18	8.4	59.8	88	128	239	344	403	0.04	8.0		Neg.
G	73.2	1.31	8.6	60.8	108	132	234	331	396	0.03	4.2		Neg.
H	72.8	1.14	8.6	60.2	96	130	236	337	404	0.04		17.0	Neg.
J	71.0	1.10	7.1	59.7	90	135	234	345	392	0.05	0.6		Neg.
J	72.6	1.06	8.8	60.4	100	132	240	341	398	0.04		18.2	Neg.
K	72.4	0.63	9.2	60.0	92	126	239	348	409	0.03	3.8		Neg.
K	72.8	1.17	8.8	60.3	101	136	241	342	410	0.03		16.6	Neg.
L	72.8	1.62	10.1	61.2	93	127	246	347	424	0.07		5.0	Neg.
L	73.1	1.04	8.8	59.9	94	126	220	340	390	0.07	7.0		Neg.
L	71.0	0.85	8.6	60.2	92	129	246	341	395	0.06		8.6	Neg.
L	71.8	1.24	8.6	60.1	94	130	246	341	396	0.05	5.4		Neg.
L	70.1	1.10	8.2	58.1	93	141	250	343	395	0.03	16.8		Neg.
L	72.7	1.23	8.6	60.6	95	132	239	337	392	0.04	5.4		Neg.
M	70.3	1.17	9.1	59.3	86	124	239	360	384	0.04	6.0		Neg.
M	72.7	1.21	8.4	60.4	100	135	240	339	406	0.03	9.0		Neg.
S	72.6	1.50	8.5	59.6	90	132	245	346	406	0.05	2.4		Neg.

Table 8

C O M P A N I E S

Alberta Hi-Way Refineries Limited

British American Oil Company Limited

Canada Western Distributors Limited

Canadian Oil Companies Limited

Crown Oil Sales Limited

Gas House Company Limited

Gas and Oil Products Company Limited

Great West Distributors Limited

Great West Refining Company of Montana Limited

Imperial Oil Company Limited

Lion Oil Company Limited

Maple Leaf Petroleum Company Limited

McColl-Frontenac Oil Company Limited

North Star Oil Company Limited

Renown Oil Company Limited

Shell Oil Company Limited

Table 9

Seasonal Average Analysis
Premium Gasoline
1939 to 1949

Season & Year	Octane No.	T.E.L.	V.P.	Gravity	Distillation Range I.B.P.	10%	50%	90%	E.P.	Sulphur	Gum
W 1939-40	78.3		10.5	63.3	91	127	229	342	389	0.06	2.0
S 1940	77.4		8.5	60.0	101	139	245	350	400	0.05	0.9
S 1941	76.6		8.5	60.3	92	133	246	354	403	0.05	1.7
W 1941-42	75.6		10.6			131	240	340		0.04	2.2
S 1942	76.2		8.8			142	247	350		0.04	1.3
W 1942-43	76.3		9.9			130	239	353		0.06	1.3
S 1943	77.0		8.5			138	248	357		0.07	2.2
W 1943-44	75.4		9.2			131	251	364		0.04	1.4
S 1944	75.3		9.1			131	249	367		0.07	3.6
W 1944-45	73.9		9.4	60.4	90	124	244	356	408	0.06	2.8
S 1945	74.1		7.1	59.6	98	138	241	352	401	0.04	3.4
F 1945	76.4		8.5	60.7	93	129	235	350	401	0.04	1.8
W 1945-46	77.1		9.1	62.0	93	125	223	343	397	0.05	2.8
S 1946	77.2		8.7	61.8	94	128	232	338	392	0.06	3.9
W 1946-47	76.1	1.96	9.9	62.8	89	120	230	335	388	0.05	2.3
S 1947	75.9	2.70	7.7	60.4	96	137	238	341	396	0.06	2.7
W 1947-48	77.3	2.98	9.8	62.0	94	128	235	339	391	0.06	2.6
S 1948	77.5	3.13	8.5	60.6	98	133	236	339	391	0.06	3.9
W 1948-49	77.1	2.95	10.1	62.0	88	120	229	335	393	0.06	2.8
S 1949	75.6	2.35	8.6	60.3	95	133	235	341	401	0.05	4.7

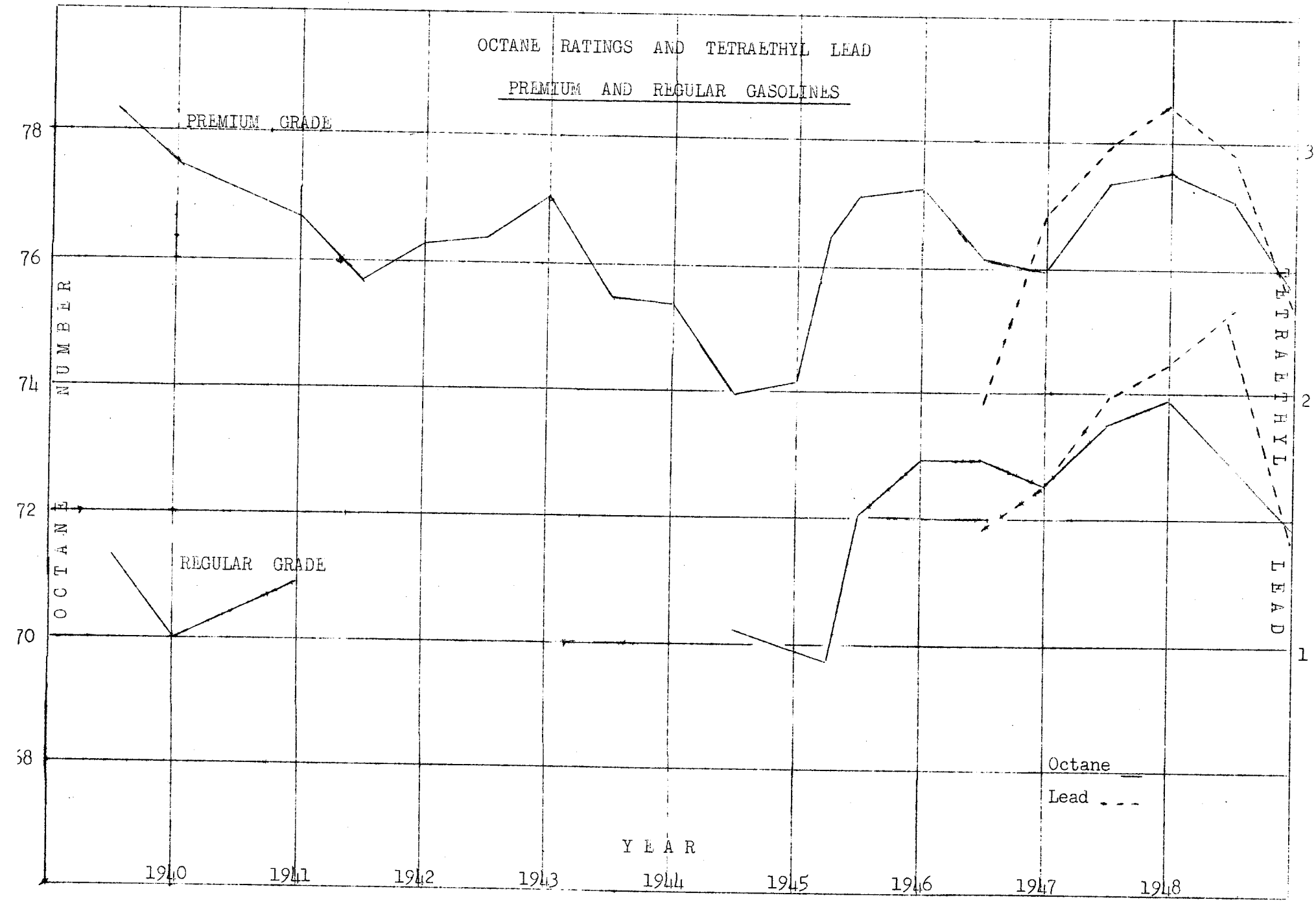
Table 10

Seasonal Average Analysis

Regular Gasoline

1939 to 1949

Season & Year	Octane No.	T.E.L.	V.P.	Gravity	Distillation Range I.B.P.	10%	50%	90%	E.P.	Sulphur	Gum
W 1939-40	71.2		10.3	62.3	93	131	141	356	401	0.07	1.9
S 1940	69.9		8.7	60.0	100	141	249	360	404	0.06	0.9
S 1941	70.8		8.1	59.1	92	138	262	362	403	0.06	2.0
W 1944-45	70.2		8.9	60.1	92	127	247	353	408	0.06	3.0
S 1945	69.8		6.9	59.1	98	140	247	355	402	0.04	2.7
F 1945	69.7		7.2	59.4	101	140	241	349	399	0.04	3.2
W 1945-46	72.0		8.7	60.6	95	131	236	347	400	0.05	3.4
S 1946	72.9		8.3	60.9	96	131	239	342	395	0.05	5.6
W 1946-47	72.9	1.46	9.3	61.4	91	125	238	340	393	0.05	3.5
S 1947	72.5	1.63	7.6	60.5	95	137	242	343	397	0.06	4.7
W 1947-48	73.5	1.98	10.1	61.8	93	128	241	339	391	0.06	2.1
S 1948	73.9	2.12	8.5	60.3	96	132	247	345	397	0.06	3.4
W 1948-49	73.7	2.35	9.5	60.8	90	128	244	336	391	0.05	2.8
S 1949	71.8	1.39	8.6	59.6	93	132	245	346	401	0.05	6.5


OCTANE RATINGS AND TETRAETHYL LEAD
PREMIUM AND REGULAR GASOLINES
PREMIUM GRADE
REGULAR GRADE
OCTANE NUMBER
TETRAETHYL LEAD
78
76
74
72
70
68
3
2
1
Octane
Lead
YEAR
1940
1941
1942
1943
1944
1945
1946
1947
1948